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WINTER 2009 NEWSLETTER FOR THE PEOPLE OF

Union Grove Lake

Deer Creek study to help target water quality efforts

A main purpose of the Union Grove Lake Watershed Project is to target priority areas in which to focus conservation efforts, both on the land and along the watershed's stream corridors.

One tool used to survey stream health is a GIS/GPS-based assessment called RASCAL (Rapid Assessment of Stream Conditions Along Length).

Deer Creek: main channel

Begun in November 2007, the RASCAL for 4.3 miles of Deer Creek and two of its major tributaries was completed in April 2008. The assessment collected data on 24 different parameters such as streambed material, streambank stability, channel pattern, pool frequency, and adjacent land cover.

Individually, each parameter reveals a great deal about the water quality of a stream. Collectively, the results can make it possible to see patterns in the data and identify not only problems, but also likely causes.

Deer Creek's RASCAL revealed that nearly all of the 4.3 corridor miles studied would benefit from the installation of riparian grassed filters.

It also showed segments along Deer Creek's main channel with numerous knickpoints, significant channel degradation, and severe streambank erosion. Upon looking at historical aerial photographs, these degraded stream segments also correspond with sections of Deer Creek which have undergone significant artificial channelization, both recently and decades ago.

Straightening a stream may make the adjacent land more farmable, but it also shortens the overall length of the stream. This increases both the streambed slope and the flow velocity within the channel. As the overfalls continue to cut down into the streambed, adjoining streambanks erode, become unstable, and eventually slough into the stream.

Deer Creek: streambank sloughing

Could creek straightening be a contributing factor to corridor and lake deterioration? No one knows for sure, but the correlation is very likely.

With the Project's limited resources, the RASCAL is important so that conservation efforts can be focused in key areas and have greater water quality impact on Deer Creek and on Union Grove Lake.

"I want to thank all the landowners and operators that allowed me access to their properties in order to complete the RASCAL assessment," said Melody Bro, Project Coordinator. "Contact me for detailed information from your land."

Scheduled Events:

Lawn Care Workshop	May 6
Tree Care Workshop	June 3
Pasture/Riparian Workshop	June 24

Want to receive the Watershed's quarterly newsletter electronically? Contact melody.bro@ia.nacdnet.net.

Union Grove Lake Watershed

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2008 Water Quality Testing Results

The results from last season's water quality testing are in, revealing several definite trends.

Two stream sites north of the lake and three sites within the lake (shallow, mid-depth, and maximum-depth on the lake's centerline) were each tested ten times from June through October. All comparisons are made to similar waterbodies in the same ecoregion of Iowa.

The stream sites consistently showed high levels of inorganic nitrogen (nitrate+nitrite). Nitrate and nitrite are naturally occurring , but concentrations can be elevated due to contamination by fertilizers and human and animal waste.

These same locations also exceeded Iowa's water quality standards for *E. coli*, a bacteria indicative of fecal contamination. The sample site in the northeast quadrant of the watershed surpassed standards in one sampling, while the northwest quadrant's site exceeded standards four of the ten times.

Overall, both tributary sites were relatively low in ammonia, phosphate, organic nitrogen, and suspended solids.

Union Grove Lake's sampling sites were high in ammonia, as well as nitrate+nitrite, throughout the season. Ammonia can be toxic to both fish and aquatic macro-invertebrates, dependent upon pH and water temperature.

Chlorophyll a was tested at the lake sites to estimate the lake's total algal biomass. These levels in Union Grove peaked in late September and early October, with levels throughout the sampling season significantly high.

Water quality testing during the early months of the Project will provide a baseline to compare data as we work together toward removing Union Grove Lake from Iowa's Impaired Waters List.

Watch for Union Grove Lake Watershed's 2008 data on the www.iowater.net website.

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Did you know? The watershed's northern boundary is also the Iowa River/Cedar River divide.